Subject Index

Accessory minerals, anatexis 220ff.
actinolite 33, 307, 346
adamellite 362f.
–, geochronology 370f.
albite 293, 346
alkali basalt, clinopyroxene zoning 112f.
alkali feldspar 104f.
almandine 87f., 357
amblygonite 293
amphibole 35, 167f.
–, spinifex textures 301f.
amphibolite 208, 339f.
anatexis 206ff.
andalusite 151, 362
andesite 24
anion substitution, apatites 394f.
anorthite 434
apatite 354, 460
–, coupled anion substitution 394f.
aragonite/calcite phase equilibrium 482
assimilation 27
augite 116, 237, 247f., 307, 427f.
axinite 404

Back-arc basins 377ff.
back-arc rifting 377
basalt 24, 189, 378f.
–, spinifex textures 303f.
–, Sr–Nd–Pb isotopic data 57f.
basaltic dikes, mylonitization 30f.
basaltic magmas, geochemical evolution 318ff.
basalt/rhyolite mixing, phase equilibria 232ff.
basanite 59
biotite 4, 33, 47, 70, 151, 353
boninite 447f.
breccia 303
Bushveld magmas, origin 447ff.

Calcite 404
–, order -disorder transition 479f.
calcite marble, grain growth 69ff.
carbonatite 458f.
–, apatite parageneses 395
cassiterite 354
chalcopyrite 354
charnockite 202
chemical analysis
–, adamellites, Pilbara 364
–, amphiboles, dikes 35
–, –, hornfels 406
–, analcime, nephelinite 463
–, apatites, CO_2-bearing 395
–, angite, Crater Lake volcanics 247
–, axinite, hornfels 406
–, basalt, Black Hills 59
–, –, Hungary 113
–, –, spinifex-textured 308
–, basaltic glass 328f.
–, basanite, Black Hills 59
–, biotite, dikes 36
–, –, hornfels 405
–, calcite, hornfels 406
–, chlorite, dikes 37
–, chloritoid, Verrucano 277
–, clinopyroxenes, Brazil. xenoliths 134
–, –, Hungarian basalts 116
–, –, nephelinite 461, 473
–, clinozoisite, hornfels 406
–, cryptoperthites 106
–, diabase dikes, Liberia 14
–, diopside, hornfels 405
–, epidote, dikes 36
–, garnets, hornfels 406
–, glass, nephelinite 463
–, gneiss, Wind River 199
–, granites, Harney Peak 294
–, –, Pilbara 364
–, –, Tsukuba 48
–, högbomite 355
–, hornblende, Crater Lake volcanics 248
–, hornfels, Sa. Nevada 407
–, ilmenite, Crater Lake volcanics 249
–, jadeite, high-P gabbros 432
–, K-feldspar, hornfels 405
–, komatiites, Crixas 190
–, magnetite, Crater Lake volcanics 249
–, –, shombole nephelinite 463
–, melanite, shombole nephelinite 463
–, micas, Tauern gneiss 3
–, migmatites, Hoggar 212
–, –, Skagit 487
–, muscovite, dikes 36
–, –, Verrucano 276
–, nepheline 462, 473
–, nigerite 355
–, olivine, back-arc basalts 378
–, orthopyroxene, Crater Lake volcanics 247
–, paragonite, Verrucano 277
–, pegmatites 293
–, perovskite, nephelinite 463
–, phlogopite, peridotite 170
–, plagioclase, back-arc basalts 380
–, –, Crater Lake volcanics 247
–, –, dikes 35
–, –, high-P rocks 431
–, –, hornfels 405
–, pseudobrookite 331
–, pyrophyllite, Verrucano 277
–, scapolite, hornfels 405
–, sodalite, nephelinite 463
–, sphene, dikes 38
–, –, nephelinite 463
–, spinel, back-arc basalts 378
–, sudoite, Verrucano 276
–, tholeiites, Kauai 177
–, trachybasalt Black Hills 59
–, volcanics, Wood Mts. 21
–, wollastonite, hornfels 405
–, zoisite, high-P gabbros 432
chlorite 33, 151, 277, 307, 346
chloritoid 70, 151, 275
chromite 307
clinoamphibole, recrystallization 339f.
clinopyroxene 34, 322f., 378, 460
–, geothermometry 87ff.
–, peridotites 166
–, zoning 112ff.
clinopyroxene series, xenoliths 131f.
clinozoisite 307, 346, 404
closure temperatures, metamorphic minerals 2f.
CO_2, apatites 394f.
CO_2/H_2O, hornfels 410
contact metamorphism, Sa. Nevada batholith 402ff.
cordierite 151, 353
corundum 70, 353
crustal contamination, basalts 63
cryptoperthites, homogenization 104ff.
–, origin 109f.
–, unit cell parameters 106
crystal fractionation 28
cummingtonite 307
cumulates 166, 307

Deformation, clinoamphiboles 339f.
–, dikes 43
devolitilization equilibria, c/sulphide-bearing pelites 418ff.
diabase dikes, isotopic composition 12ff.
diorite 439
diopside 87f., 115, 132, 404
disequilibrium melting, migmatites 216
dolerite 31
dolomite 73

Edenite 346
element partitioning, phenocrysts/melt, experimental 261ff.
enthalpy of fusion, melts 122f.
enthalpy of mixing, melts 122f.
epidote 33

Fassaite 115
Fe–Mg exchange, geothermometry 87ff.
Fe/Mg partitioning, olivine/basaltic liquid, P–T-composition dependence 261ff.
ferrosalite 115
flow models, fluid-rock interactions 411f.
fluid flow, contact metamorphism 411f.
fluid-rock interactions, contact metamorphism 410f.
fluids, C–O–H–S, pelites 420f.
forsterite, enthalpy of fusion 129
fractional crystallization, komatiites 193f.
–, peridotites 171
fractional melting, migmatite genesis 214
fractionation, granite 297
–, nepheline magmas 466

Gabbro 427, 439
garnet 151f., 404
–, U–Pb diffusion 137
gedrite 354
geochronology, greenstone belts 361ff.
–, high-P rocks 280ff.
–, Hoggar migmatites 207ff.
geothermometry, calcite/dolomite, marbles 73f.
–, garnet/clinopyroxene 87ff.
–, nepheline/liquid 476

glass, nephelinite 463
gneiss 198f., 208f., 440, 486
grain boundary mobility 222
grain growth, marbles 69ff.
granite 461., 198, 208, 290f.
–, Fe–Ti oxides 335
granulite 201
–, geochronology 136ff.
graphite, pelites 418f.
greenstone belt 301f.
–, komatiites 187f.
–, magma types 447f.
greenstone geochronology, Pilbara 361ff.
grossular 434

Harzburgite 166
hedenbergite 87f.
hematite 353
hercynite 353
högbomite 350ff.
–, occurrences 351
hornblende 7, 248
hornfels mineralogy 404ff.

Ignimbrite 246, 460
ilmenite 249, 353
island arc magmas 377ff.

Jadeite 426

K-feldspar 47, 293, 404
komatiite 302f., 447f.
–, textures and geochemistry 187ff.
kyanite 70, 151, 277, 362, 426f.

Lavas, East African Rift 460f.
leucosome types 488
lherzolite 166

Magma evolution, back-arc rifting 384f.
–, Woods Mts. 19ff.
magma mixing 232ff.
magma-pelite interaction 418ff.
magmatic differentiation, variables 440
magnetite 237, 249, 353, 460
mantle, metasomatic fluids 165f.
mantle metasomatism 65
marble 404
mass balance, migmatitization 490f.
melanite 460
muscovite 34, 47, 151, 275, 404f.
mylonitization 30ff.

Nd isotopic data, basalts 57f.
nepheline 460f.
nephelinites, peralkaline 458f.
nigerite 352

O-isotopes, mantle magmatites 436f.
–, migmatites 489f.
olivine 132, 189, 236, 248, 378f., 427f.
–, phenocrysts in tholeiites, zoning 176ff.
olivine/melt, experimental Fe–Mg partitioning 261ff.
orthopyroxene 132, 166, 237, 247f., 428

Paragonite 277
partial melting, migmatites 209f.
–, trace elements 295
Pb isotopic data, basalts 57f.
pegmatite, apatite parageneses 395
–, petrogenesis 290ff.
pelites, C/sulphide-bearing, devolatilization 418ff.
peridotite 166
–, clinopyroxenes 131f.
perovskite, phenocrysts 460f.
phase transitions, $CaCO_3$ 479f.
phengite 5
phenocryst zoning, olivine in tholeiites 176f.
phlogopite, peridotite 165ff.
phonolite 460
pillow lavas 302
plagioclase 34, 166, 237, 247f., 354, 378f., 404f.
–, high-P breakdown 426ff.
pseudobrookite 329f.
pumice 246
pyrite 354
–, C-bearing pelites 418f.
pyrope 87f.
pyrophyllite 151, 275
pyrrhotite 353
–, C-bearing pelites 418f.

Quartz 34, 151, 293, 308, 340, 354, 404, 426, 440
quartzite 226

Rayleigh fractionation model, Gangdese magma evolution 440f.
Rb–Sr geochronology, high-P rocks 285f.
recrystallization, clinoamphiboles 343f.
redox equilibria, melts 336
REE, back-arc basalts 385
–, komatiites 191
replacement, migmatites 491
rhyodacite 246f.
rhyolite 24, 440
–, Fe–Ti oxides 335
rifting, back-arc 377f.
rutile 354

S, pluton contamination 422
salite 115
scapolite 404
seamounts 382f.
sillimanite 70, 151, 354, 362
Sm–Nd geochronology, high-P rocks 282
sodalite 462
solid solutions, alkali feldspars 104f.
sphalerite 354
sphene 33, 460
spinel 132, 352, 378f.
spinifex textures, komatiites 188f., 301f.
spodumene 293
Sr, volcanics 251
Sr isotope data, granites 46f.
Sr isotope ratios, back-arc basalts 383
Sr isotopes, diabase dikes 14
Sr isotopic data, basalts 57f.
staurolite 151, 353
substitution, apatites 394f.
sudoite, Verrucano 274f.

Taaffeite 352
talc 151
thermal erosion, komatiites 193
thermodynamic data, silicate melts 122ff.
thermodynamics, metapelites 149ff.
tholeiite 59, 377f.
–, olivine zoning 176ff.
Ti-angite 116
trace elements, Arizona basalts 60
–, back-arc basalts 382f.
–, Hoggar migmatites 212
–, komatiites 190f.
–, nephelinites 469f.
–, pegmatites 290f.
–, Pilbara adamellites 366f.
–, tuff 25
–, ultramafic cumulates 449f.
trachybasalt 59
trachydacite 24
trachyte 460
tremolite 307
tschermakite 346
tuff, isotopic composition 25f.

U–Pb data, zircons 202
U–Pb geochronology, granulitic garnets 136ff.
U–Pb zircon geochronology, high-P rocks 280ff.
ultramafic cumulates, Bushveld 447f.

Verrucano sequence, Apennines 274
volcanics, Shombole 460ff.
volcanism, back-arc basins 377ff.

Wollastonite 404, 469

Xenoliths, clinopyroxenes 131f.
–, geochemistry 24f.

Zircon 226, 354
zircon geochronology, gneiss 200, 209f.
–, high-P rocks 280ff.
zoisite 426f.
zoning, clinopyroxenes 112ff.